

**Review of Data Communication Function**  
**Report No. 98-16, June 19, 1998**

This report presents the results of the Office of Inspector General's (OIG) review of data communications between the Railroad Retirement Board (RRB) headquarters office and the agency field offices.

**Background**

The RRB's Office of Programs has been pursuing a variety of automation improvements to increase its efficiency, productivity, and effectiveness. The goal is to reduce the number of field offices from 57 (as of June 1997) to 53 by the end of Fiscal Year 1998. The number of employees in these field offices ranges from three to 12, except the Chicago District office has 16 employees. The vast majority of electronic data communications between the field offices and the computer systems in headquarters is through Personal Computers (PCs), Local Area Networks (LANs), and computer terminals in the field offices which connect to the mainframe computer systems.

A number of information technologies are being used or have been planned for the field office operations to improve service to the RRB's customers. These technologies include bulletin board services, field service electronic mail services, an Internet web site, and an intranet. In addition, they also use notebook and desktop PCs and LANs and mainframe computer systems, as described below.

Notebook and Desktop PCs/LANs - Several limited function terminals have been replaced with PCs that are connected to a LAN. Twenty-two field offices already have LANs installed and four more will be installed in Fiscal Year 1998. In addition to word processing and spreadsheet work, the field office desktop PCs and LANs are used to connect to the RRB headquarters' mainframe computer systems.

The notebook PCs in the field offices are used to provide potential applicants with an estimate of the annuity they can expect to receive. The field service management has also requested the development of a PC-based annuity application program for use on notebook computers. The advantages of a PC version include the ability to take applications independent of the mainframe computer.

Mainframe Computer Systems - Field office staff access several mainframe-based computer application systems and other systems to do their day-to-day work of taking applications from beneficiaries, processing claims, and responding to customer inquiries. These systems are accessed via a dedicated or leased data communication line.

This review supports Performance Goals in the RRB's Strategic Plan and Annual Performance Plan for Fiscal Year 1999. The RRB has goals to make information available at the customers' initial points of contact and to ensure effective and efficient management of information technology resources. The field service is the first point of contact for many

RRB customers, and it is essential that computer-based information systems provide the required data to meet customers' needs. Under the "one and done" philosophy, RRB customers will be able to initiate and complete all of their business transactions with just a single contact or one stop.

### **Scope and Methodology**

The objective of the review was to determine the effectiveness of data communications between the field offices and the RRB headquarters office.

We accomplished the objective by:

- reviewing Management Control Review documents for computer services, sickness and unemployment insurance application development and claims processing, and access control and security;
- reviewing Monthly Administrative Reports and Technical Review Reports issued by field service management;
- reviewing the RRB's Automation Plans and Strategic Information Resources Management plan;
- conducting a risk assessment to select auditable activities;
- interviewing Bureau of Information Services (BIS) and field office personnel;
- analyzing response time and system availability data; and
- reviewing disaster recovery and contingency planning documents.

The audit scope covered electronic data communications between the field service offices and RRB mainframe computer systems. Specifically, the scope covered four areas: (1) system availability rates; (2) system response times; (3) network security controls; and (4) network backup, recovery, and contingency plans. The organizational components that were part of this review include field office communications, field services at headquarters, the data communication function within the BIS at headquarters, and the Systems and Policy Division within the Office of Programs. The time period covered by this review is Fiscal Year 1997.

We conducted this review in accordance with generally accepted government auditing standards appropriate to the objective described above. Field work was performed between February and May 1998 at RRB headquarters in Chicago, Illinois.

### **Results of Review**

Network security controls and network backup, recovery, and contingency plans are reasonably effective. The network security controls include entering an account number, a user identification code, and a password. If any of these are incorrect, the system prompts the person to enter a valid one. After three unsuccessful prompts, the system will suspend the user and an administrator will need to intervene.

Regarding the network backup, recovery, and contingency plans, appropriate controls include the availability of a maintenance contract and a help-desk function, and the participation of field office staff in simulated network disaster testing.

Reported data about network response time was also within the established standard. However, the RRB can improve its completeness and the way it is measured and reported. Reports on system response time are incomplete, intermittent, and inefficient. They include only network response time, not mainframe processing time. The total system response time is a combination of mainframe processing time and the network response time. Response time measurements are limited to ten field offices and the data is collected intermittently with manual procedures. The major problem with the current measurement method is that RRB management is unable to compare the total system response times both within and among all the field offices in an objective manner.

The RRB system availability rates are high and are exceeding the standard. However, the current standard may be outdated. Several years ago, the RRB established a standard rate of 97% for remote application system availability and has not updated it to reflect recent improvements resulting from installation of new disk storage technology.

Descriptions of these areas are discussed in the balance of this report.

### **System Response Time**

The BIS does not have a system to continuously and efficiently measure and report the total system response time between the RRB headquarters and all field offices. In the absence of complete and objective data, RRB management cannot identify the offices with the best and worst total system response times.

The current method of measurement is done intermittently. One day during each month, staff in ten field offices measure network response times for selected computer inputs. Each month, BIS management reports its service results, including average network response time based on these ten field offices.

The current method of measurement is inefficient because it uses staff in these ten offices to manually measure and report the network response time. Using field office staff to manually measure the network response time interrupts their normal work activities and can reduce their productivity. Using automated tools to measure total system response times would increase efficiency since they require little or no user involvement.

The current method of measurement is incomplete because the BIS reports only the network response time. Mainframe processing time is not included in these reports. From a field office user point of view, total system response time is a combination of mainframe processing time and the network response time.

The measurement method, which is based on sampling, is also incomplete because it includes only ten field offices, not all 57. The sampling results can be misleading since network response times vary with network traffic volume and time of the day.

The current standard for network response time is five seconds or less. This standard does not include mainframe processing time, which is important due to potential delays resulting from several legacy application systems. Data sharing is difficult between legacy systems, which will slow down the response times. BIS has not established a standard for the total system response time.

With planned changes in the RRB's Information Technology environment such as installing LANs in every field office and linking the RRB's computer to Social Security Administration's computer for data exchange, the total system response time measurement would take on an even more important dimension by measuring the impact of the changes.

The reasons for the inability to measure the total system response time in field offices are (1) lack of automated tools and (2) inadequate memory in most field office controllers, which are aged and soon will be replaced.

To support the agency's ultimate goal of "one and done" customer service, the total system response time should be measured, tracked, and reported for all field offices. Measuring the network response time at only ten field offices leaves out the other field offices, which are equally important in providing service to all RRB customers. Slow response time can contribute to dissatisfied employees and customers.

### **Recommendation No. 1**

The Chief Information Officer should ensure a complete, efficient, and continuous measurement of total system response time, which includes both the mainframe processing time and the network response time for all field offices.

### **Management's Response**

Management did not concur with this recommendation. They responded that sampling is an acceptable technique, that the RRB has had no network response problems for years, and that customer calls are a built in measurement technique.

### **OIG Comments**

After reviewing management's response, the OIG concludes that the recommendation is still valid for the reasons stated in the report. The OIG recognizes the usefulness of sampling but has identified several problems with the sampling method being used to measure system response times. A sampling plan that obtains input from only 10 of 57 field offices and never samples the remaining 47 offices cannot be relied on as an effective means of measuring service levels. In addition, a policy of relying on customer complaints to monitor service levels, identify problems, and allocate resources has questionable reliability and validity in determining that system response times are appropriate.

Management referred to the probability of implementing a frame relay communications network. Management should address the weaknesses in the current procedures when implementing any new system.

### **System Availability Rate**

The RRB established a standard rate of 97% for remote application system availability several years ago, and has not updated it to reflect recent improvements resulting from installation of new disk storage technology. During fiscal year 1997, the RRB achieved its highest system availability rate of 99.82% in September 1997 and its lowest rate of 94.10% in December 1996.

System availability rate is computed by considering hours lost due to any problems encountered at headquarters or with the network. Each month, BIS management reports its service results, including average network availability.

The establishment of a proper standard contributes to the achievement of the RRB's ultimate goal of "one and done" customer service. The higher the system availability rate, the greater the time a computer application system is available to handle business transactions and service customers.

In the past, the RRB's adopted standard was appropriate since actual performance was lower due to a number of computer disk head crash problems that lead to low system availability rates. With the installation of new disk storage technology in September 1997, such problems disappeared and system availability rates have increased to 99.82%. A standard that is not based on current performance levels is not useful in measuring and monitoring the remote system availability rates.

The BIS management has indicated that they plan to revisit the "standard" based on 12 months of actual performance data.

### **Recommendation No. 2**

The Chief Information Officer should ensure that the current standard for remote application system availability is reviewed as indicated by BIS management and determine the need

to revise the standard based on actual performance data. on No.2)

### **Management's Response**

Management concurred with the recommendation. The target implementation date is October 1, 1998.

### **Overall Conclusion**

Implementation of an automated system to continuously measure total system response time would allow the RRB to efficiently monitor performance in all field office locations. The RRB would have quantified data to identify and allocate support to the offices with the lowest levels of service. Maintaining high levels of system response time is essential in providing customer service through field office locations.

Maintaining an appropriate system availability standard will reflect the agency's desire to maintain high standards and provide excellent quality service. An appropriate standard and reporting would also help highlight the situation for management's attention if performance were to drop below the desired level.